

# AVERAGE ANNUAL SOLAR RADIATION PER DAY OVER NORTHERN NORTH AMERICA

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[Manuscript received June 28, 1963; revised July 8, 1963]

Early in 1946, Dr. Harry Wexler appointed Sigmund Fritz as the supervisor of a solar radiation and upper air research unit at the Weather Bureau Central Office. Early planning by Dr. Wexler and S. Fritz resulted, among other benefits, in a great increase in the number of solar radiation measuring stations in the United States. In July of 1962 there were about 85 such stations—more than twice as many as in 1946 when the expansion began. It seems appropriate that the Wexler Memorial Contributions should contain a condensation of the data produced by the solar radiation network with which Dr. Wexler was so intimately associated.

Figure 1 shows the average annual distribution, in langley's per day, of solar radiation incident on the earth's surface. (The langley—a term introduced by Wexler, Fritz, et al. [1]—is one gram calorie per square centimeter.) For the United States area, figure 1 is based on substantially all of the data acquired (through 1960) by the network on horizontal surface radiation [2], [3]. With respect to Canada the contours are based largely on data condensed from a work by Mateer [4], supplemented by data published since 1955 in [3] and [5]. All United States data were placed, where necessary, on the 1956 International Scale of Pyrheliometry.

## ACKNOWLEDGMENT

Thanks are due to Mr. Benjamin LeBlanc for performing most of the large task of processing the data.

## REFERENCES

1. *Science*, vol. 106, No. 2749, Sept. 5, 1947, a note on page 225.
2. "Solar Radiation Data," *Monthly Weather Review*, through 1949.
3. "Solar Radiation Data," *Climatological Data, National Summary*, U.S. Weather Bureau, 1950-1960 incl.
4. C. L. Mateer, "A Preliminary Estimate of the Average Insolation in Canada," *Canadian Journal of Agricultural Science*, vol. 35, Nov.-Dec. 1955, pp. 579-594.
5. *Monthly Radiation*, Meteorological Branch, Department of Transport, Canada, 1955-1960.

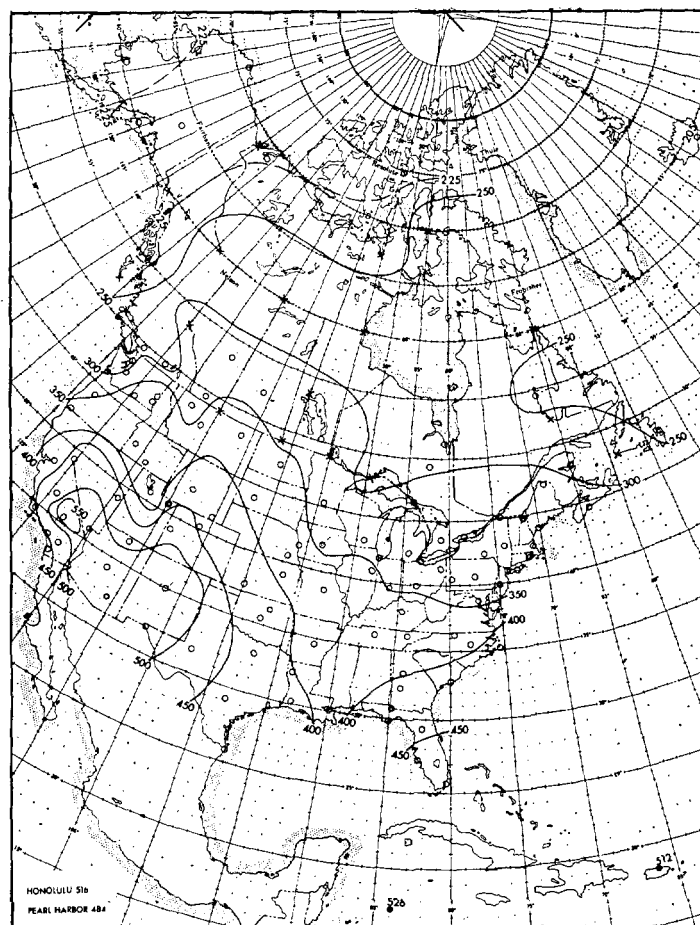


FIGURE 1.—Average annual solar radiation per day (in Langley's). Circles indicate radiation observing stations; X shows geographical points for which data were interpolated from [4].